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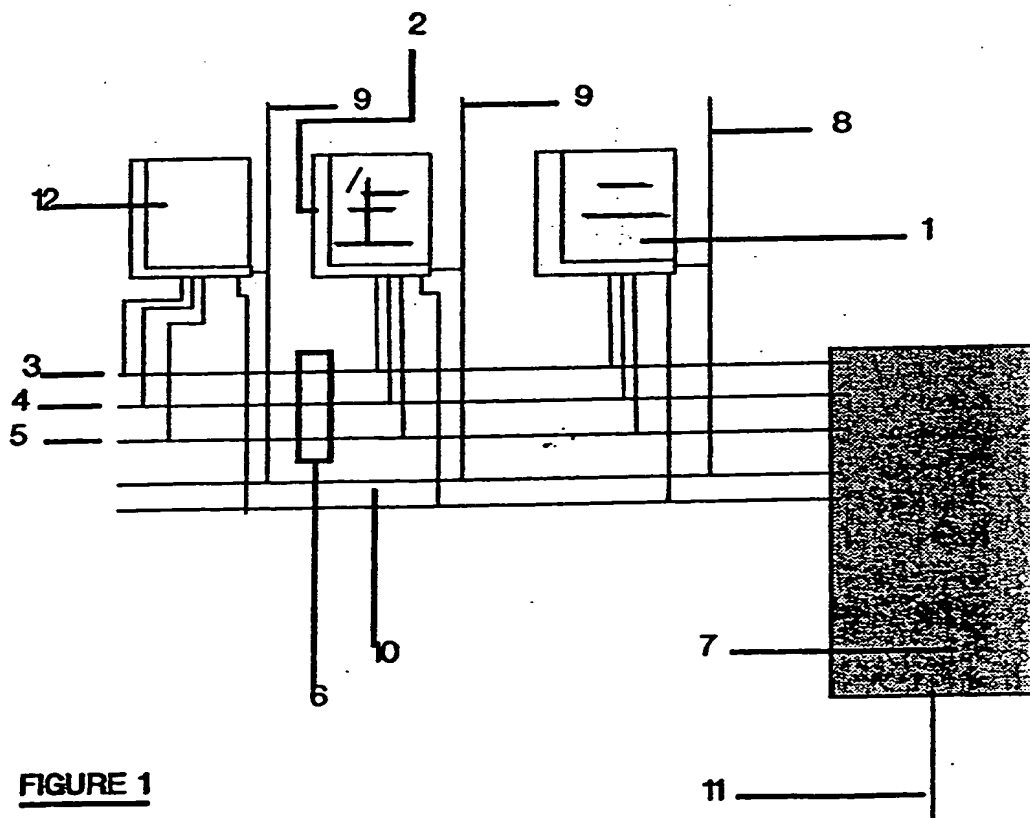
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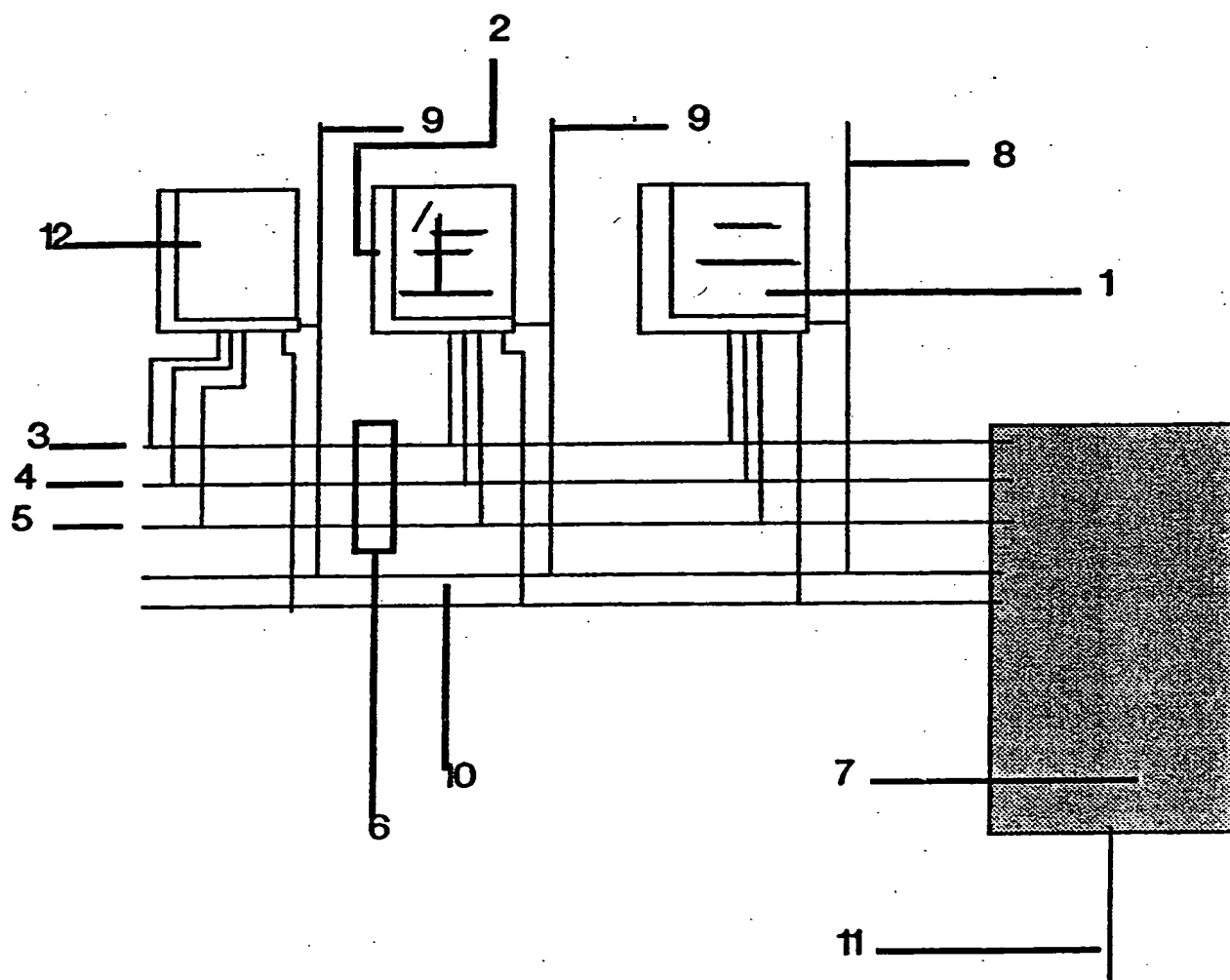
## (54) Multifunctional keyboards with changeable keytop indicia

(57) The key tops of a keyboard for general purpose use of input of textual data to an electronic computer has embedded in the surface of the key tops a liquid crystal display, or similar solid state display device, which can display letter, symbol or pictorial data. Such a miniature display device in each key top allows, under the control of a microprocessor which holds the symbol data in memory, symbols to be displayed or varied at short notice. This allows several character sets to be presented on a keyboard in for instance the QWERTY layout for English, or AZERTY layout for French, or as several selectable parts of Chinese keyboards on just one keyboard. The desired section of a language set is brought into view by holding down the appropriate 'shift' key. In effect the one keyboard can display one of several virtual keyboards that are 'out of view' until that virtual keyboard is brought into 'view'.



**FIGURE 1**

Best Available Copy



**FIGURE 1**

**Best Available Copy****Dynamically changeable key tops for computer processed keyboard input**

This invention relates to a keyboard that can be electronically switched to display the appropriate lettering of any language by the computer to which it is connected.

Keyboards are the standard way of inputting textual data to electronic computers. The computer displays its output to the person using it on a visual display screen or teletype roll. The keyboards used are of a fairly standard nature but usually specifically engineered for use in a particular country or for a specific application. When used for textual input, the keyboard will vary from country to country in a slight or major way. For instance, a keyboard for input of English character data will be very much simpler than one for the Japanese character set. The English character set is composed of a to z, A to Z and 0 to 9 as well as various punctuation marks. However in the Chinese character set, strokes represent characters or phonetic symbols. To represent a major section of the Chinese full character set, as printed by hand, as well as offering the stroke construction method, does require a very large keyboard of key tops. A Chinese typewriter is an example of this. Each key top represents either a stroke that may be built up into a character by overtyping or a fully formed character, such as the character for 'man'.

Additionally, even within a single range of keyboards available from one supplier of one brand of computers, the keyboards needed for each range of computers and/or applications can vary considerably.

This invention removes the previously mentioned constraints to provide a single keyboard for connection to a computer and its visual display unit. The keyboard's key tops are dynamically changeable in that the computer can either specify what character or symbol set is to be displayed on each respective key top. Alternatively the keyboard can be preset with a subset of characters and manually switched to display a particular set of characters in one of the languages. For example, one moment the English character set may be displayed, and the next the French character set.

## CLAIMS

1. The key tops of the keyboard as used for computer input of textual or pictorial data have the letters, symbols or pictures displayed on the key tops via an electronic solid state device such as a liquid crystal display, and the symbols can be dynamically changed for the sole purpose of showing the currently selected symbol set in a particular key layout by a microprocessor that drives the key top displays and encodes the then pressed keys with codes recognised or agreed by the host computer driving the visual display associated with the keyboard.
2. The keyboard's key tops each have an integrated display device and each is individually addressable by the controlling microprocessor for the purpose of displaying a unique but instantaneously changeable symbol as well as for detecting which key top is pressed by a person using the keyboard.